

**CLAIMS**

5        1. A co-generation turbocharged turbine system comprising:

- a) a gas turbine having an air intake and an exhaust outlet,
- b) a turbocharger having a driven rotor and a drive rotor on a common power shaft, in fluid communication from said gas turbine exhaust outlet to the driven rotor, and in fluid communication to said gas turbine air intake from the drive rotor of the
- 10      turbocharger for increasing the turbine's power and efficiency, and
- c) a work load connected to said turbocharger common power shaft changing the exhaust force from combustion within the gas turbine into rotary motion on the turbocharger common power shaft to create usable energy.

15      2. The co-generation turbocharged turbine system as recited in claim 1 wherein said turbine further comprises an air compressor, a combustion chamber and at least one turbine wheel mounted on a shaft common with the air compressor and combustion chamber rotating the turbine wheel by the force of moving fluid.

20      3. The co-generation turbocharged turbine system as recited in claim 1 wherein said turbine further comprises a fuel source and an ignition means, wherein the ignition means is comprised of electrical power source.

25      4. The co-generation turbocharged turbine system as recited in claim 1 wherein said turbocharger includes a pair of isolated rotors on a common shaft which are defined as an exhaust drive rotor and a driven air compressor rotor.

5. The co-generation turbocharged turbine system as recited in claim 1 further comprising a waist gate and intercooler disposed between the turbocharger and the gas turbine air intake.
- 5 6. The co-generation turbocharged turbine system as recited in claim 5 wherein said turbocharger further comprises an external power shaft that is integral with said common shaft.
- 10 7. The co-generation turbocharged turbine system as recited in claim 6 wherein said work load is an electrical energy producing device that is attached to said external power shaft.
8. The co-generation turbocharged turbine system as recited in claim 7 wherein said electrical energy producing device is selected from the group consisting of an electric generator or an alternator.
- 15 9. The co-generation turbocharged turbine system as recited in claim 6 further comprising a vapor generator which is in fluid communication with said turbocharger exhaust and that produces high-pressure vapor when a liquid capable vaporizing is introduced therein.
- 20 10. The co-generation turbocharged turbine system as recited in claim 9 further comprising a vapor driven turbine having a vapor driven turbine power shaft attached to the turbocharger power shaft, which increases energy to the combined shafts with the addition of power developed by high pressure vapor from the vapor generator.
- 25 11. The co-generation turbocharged turbine system as recited in claim 10 wherein further comprising a work load attached to said vapor driven turbine power shaft which ultimately employs unused energy from the gas turbine exhaust.

12. The co-generation turbocharged turbine system as recited in claim 11 further comprising a condenser having an inlet and an outlet, with the inlet in communication with the vapor driven turbine and the outlet in communication with the vapor generator for condensing the vapor utilized in the vapor driven turbine into a liquid and returning  
5 the liquid to the vapor generator condensed liquid inlet in a closed loop manner.

13. The co-generation turbocharged turbine system as recited in claim 12 further comprising a high-temperature electrolyzer in communication with said vapor generator exhaust for separating hydrogen and oxygen from water by utilizing heat that is ultimately  
10 supplied by the gas turbine.

14. The co-generation turbocharged turbine system as recited in claim 1 further comprising a high-temperature electrolyzer disposed in said exhaust outlet of said gas turbine and said turbocharger driven rotor for separating hydrogen and oxygen from water  
15 utilizing heat that is ultimately supplied by the gas turbine.

15. A co-generation turbocharged turbine system comprising:

- a) a gas turbine having an air intake, exhaust outlet and a power shaft,
- b) a turbocharger having a driven rotor and a drive rotor on a common power  
20 shaft, in fluid communication from said gas turbine exhaust outlet to the driven rotor, and in fluid communication to said gas turbine air intake from the drive rotor of the turbocharger for increasing the turbine's power and efficiency, and
- c) a work load connected to said gas turbine power shaft changing exhaust force from combustion within the gas turbine into rotary motion on the power shaft to create  
25 usable energy.